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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/699,190 | 10/31/2003 | Michael D. Gandrud | P06597US0-5191 | 3475 |

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DES MOINES, IA 50309-2350

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| EXAMINER |
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FRANTZ, JESSICA L

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| ART UNIT | PAPER NUMBER |
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3746

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 02/12/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/699,190

Applicant(s)

GANDRUD, MICHAEL D.

Examiner

Jessica L. Frantz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: on line 9 of the claim, the phrase "an a first" should be changed to --a first--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 7 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the independent claim from which both claims 7 and 8 depend recites an axial configuration while claims 7 and 8 recite a different conflicting configuration. It is unclear how a structure can be in two conflicting configurations at the same time. A lack of rejection over prior art should not be interpreted as an indication of allowability.

Claim Rejections - 35 USC § 103

3. Claims 1, 3, 5 and 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nippert US 2003/0110935 in view of Hare, Sr. 5,158,109 and further in view of Moutafis et al. US 2002/0176788. Nippert teaches the invention substantially as claimed including a positive displacement piston unit 12 comprising a housing 40, a plurality of cylinder bores 44 within the housing 40, each bore 44 having a top end being the end associated with passage 52 opposite a bottom end being the end associated

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with passage 54 with a piston 46 traveling there between, first and second fluid passages 52, 54 connected to the top end and the bottom end of each bore 44 as shown in figure 4. Each fluid passage 52, 54 is associated with an electronically controlled valve element 64, 66 which include actuators 76, 78 that are controlled by a controller 24 and also the device 12 may be operated as either a pump or a motor as discussed in paragraph [0002]. Nippert also teaches an inlet 52 fluidly associated with a first valve 66 and the piston 46 such that when the piston reciprocates, fluid outside the bore 44 passes from the inlet 52 through the valve 64 to the first fluid passageway 52 and into the bore 44 as shown in figure 4. Nippert further teaches an outlet 54 associated with the second valve 66 such that fluid passes from the bore 44 through the second fluid passage 54 to the second valve 66 to the outlet 54 as shown in figure 4. Nippert fails to teach the following claimed limitations that are taught by Hare: valves 10 that incorporate electro-energized field generating elements which are electrodes 36 and rheological fluid 24 disposed within the fluid passages 11 wherein the rheological fluid has a viscosity that increases in the presence of an electric field see Hare column 5, lines 22-38. Hare teaches these electro-rheological valves 10 for the purpose of universally controlling flow of any fluid such as gas, water, oil, hydraulic fluid, liquid chemicals and slurries between two points along a conduit see Hare column 1, lines 20-30 and also because they have very rapid responses to electrical signals enabling them to be well suited in mechanical devices see Hare column 1, lines 47-50. Hare further teaches an electronic controller 130 to control the energizing and de-energizing of the electro-energized field generating element as discussed by Hare column 8, lines 31-55

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wherein the controller 130 selectively energizes and de-energizes the electro-energized field generating element 36 to reduce flow of the rheological fluid 24 through the fluid passages 11 see Hare column 5, lines 22-38. Hare also teaches the controller 130 can selectively energize the electro-energized field generating element 36 associated with one cylinder and de-energize the electro field generating element 36 associated with an adjacent cylinder to reduce flow of the electro-rheological fluid 24 through the piston unit as discussed by Hare column 8, lines 31-55 and it has been held that while the features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function, because apparatus claims cover what a device is, not what a device does (Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990)). Thus, if a prior art structure is capable of performing the intended use as recited in the preamble, or elsewhere in a claim, then it meets the claim. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the valves of Nippert with the valves of Hare for the purpose of universally controlling flow of any fluid such as gas, water, oil, hydraulic fluid, liquid chemicals and slurries between two points along a conduit see Hare column 1, lines 20-30 and also because they have very rapid responses to electrical signals enabling them to be well suited in mechanical devices see Hare column 1, lines 47-50. The modified apparatus of Nipper in view of Hare fails to teach the following claimed limitations that are taught by Moutafis: the pistons are arranged in an axial configuration for the purpose of making a compact flow path see Moutafis Abstract,

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lines 13-15. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have arranged the combined apparatus of Nippert in view of Hare in an axial configuration as taught by Moutafis for the purpose of making a compact flow path see Moutafis Abstract, lines 13-15.

4. Claims 1-2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nippert US 2003/0110935 in view of Wassell US 2002/0011358 and further in view of Moutafis et al. US 2002/0176788. Nippert substantially teaches the claimed invention as discussed above but fails to teach the following claimed limitations that are taught by Wassell: valves 70, 71 that incorporate electro-energized field generating elements which are electromagnets 92 and rheological fluid not labeled disposed within the fluid passages 51 wherein the rheological fluid has a viscosity that increases in the presence of a magnetic field see Wassell paragraphs [0041] and [0044]-[0045]. Wassell teaches the incorporation of magneto-rheological valves for the purpose of controlling pistons 12 of a guidance module 10 see Wassell paragraph [0029]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the valves of Nippert with the valves of Wassell for the purpose of controlling pistons 12 of a guidance module 10 see Wassell paragraph [0029]. The combined apparatus of Nipper in view of Wassell fail to teach the following claimed limitations that are taught by Moutafis: the pistons are arranged in an axial configuration for the purpose of making a compact flow path see Moutafis Abstract, lines 13-15. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have arranged the combined apparatus of Nippert in view of Wassell in an axial configuration as taught

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by Moutafis for the purpose of making a compact flow path see Moutafis Abstract, lines 13-15.

Response to Arguments

5. Applicant's arguments with respect to claims 1-13 have been considered and have been addressed in the new ground(s) of rejection.

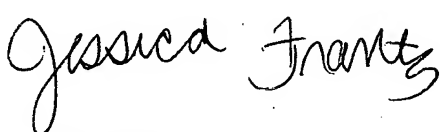
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica L. Frantz whose telephone number is 571-272-5822. The examiner can normally be reached on Monday through Friday 8:30a.m.-5:00p.m. E.S.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ehud Gartenberg can be reached on (571) 272-4828. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



JF 2/5/2007



**EHUD GARTENBERG
SUPERVISORY PATENT EXAMINER**